

CLAIMS

What is claimed is:

1. A rotary tableting press comprising:
a turret supported for rotation about an axis, said turret including an upper carousel and a lower carousel each having a plurality of openings, the openings in said upper carousel being vertically aligned with associated openings in said lower carousel;
a plurality of upper and lower punch casings, each of said punch casings having a central opening and being removably received in one of the openings of said upper and lower carousels;
a plurality of upper and lower punch members, at least a portion of each of said upper and lower punch members being slidably received for reciprocation in the central opening of one of said upper and lower punch casings; and
means for reciprocating said upper and lower punches within said upper and lower casings.
2. The rotary tableting press according to claim 1 wherein said reciprocating means comprises upper and lower rollers supported by corresponding upper and lower fixed plates, said upper and lower rollers positioned and oriented to engage a first end of said upper and lower punch members to direct said upper and lower punch members toward one another.
3. The rotary tableting press according to claim 2 wherein said reciprocating means further comprises means for biasing the upper and lower punch members, said means for biasing upwardly biasing the upper punch members and downwardly biasing the lower punch members.
4. The rotary tableting press according to claim 1 wherein the central opening in each of said lower punch casings includes a bore extending to a terminal end, and wherein each of said lower punch casings

includes a die portion extending from the terminal end of said bore to an end of
5 said casing, and an opening defining a material chamber extending through said
die portion and communicating with said bore, and wherein each of said lower
punch members includes a central body portion slidably received in said bore
and a mold shaft extending from one end of said body portion, at least a portion
of said mold shaft being slidably received in the material chamber of said die
10 portion.

5. The rotary tableting press according to claim 1 wherein the openings in said upper and lower carousels are arranged in at least two concentric rows of openings in an outer peripheral portion of said upper and lower carousels.

6. The rotary tableting press according to claim 3 wherein each of said upper punch members includes a mold projection extending from one side of a central body portion, and wherein the mold projection includes an upper mold recess and wherein the mold shaft of the lower punch member includes a lower mold recess, the upper and lower mold recesses positioned such that they are brought into intimate confronting relationship during said reciprocation of said punch members, the reciprocation of the punches causing material between the mold recesses to compress to form a tablet.

7. The rotary tableting press according to claim 6 wherein the upper and lower mold recesses are substantially similar in size and shape.

8. The rotary tableting press according to claim 2 wherein each upper roller includes an arcuate surface which projects below a lower surface of the upper plate, and wherein each lower roller includes an arcuate surface which projects above an upper surface of the lower plate

9. The rotary tableting press according to claim 2 wherein each of the upper and lower rollers is fixed against rotation and wherein the center of each of said upper rollers is in substantial alignment with the center of one said lower rollers.

10. The rotary tableting press according to claim 6 wherein the body portion of each upper punch extends above an upper surface of the upper punch casing, the body portion having an upper end with a retention flange, wherein the means for biasing includes a first resilient member located
5 between the retention flange and the upper surface of the upper punch casing and biases the upper end of the upper punch member away from the upper punch casing, and a second resilient member located between the central body portion of the lower punch member and the lower punch casing for biasing the
10 central body portion of the lower punch member away from the lower punch casing.

11. The rotary tableting press according to claim 10 wherein each of said second resilient members is a spring located within the central opening of one of said lower punch casings.

12. The rotary tableting press according to claim 6 wherein the confronting relationship between the mold recesses in said upper and lower punch members occurs adjacent to an upper surface of said lower carousel.

13. The rotary tableting press according to claim 10 further including a fixed lower plate mounted below the lower carousel, the lower plate having at least one ejection cam formed on an upper surface, the ejection cam projecting upwardly from the upper surface of the lower plate and adapted to
5 contact a follower formed on and extending downward from the central body portion of the lower punch member, the contact between the ejection cam and

the follower forcing the mold shaft of the lower punch member to eject the tablet from the lower punch casing.

14. The rotary tableting press according to claim 13 further comprising at least one tablet weighting station for metering a preselected amount of material to be molded in the material chamber of said lower punch casings, said tablet weighting station including a doser supported by said tablet weighting station such that an upper surface of said doser is located adjacent the lower plate of said tableting press for contact with said follower of said lower punch members, said tablet weighting station including an adjustable support for adjustment of the position of the upper surface of said doser with respect to the lower plate.

15. The rotary tableting press according to claim 8 wherein the support of at least one of said upper and lower rollers by said tableting press is adjustable such that the distance which the arcuate surface projects from the plate may be varied.

16. The rotary tableting press according to claim 3 wherein the upper end of the upper punch member is rounded and adapted to slide along the lower surface of the upper plate, and wherein the lower end of the follower is rounded and adapted to slide along the upper surface of the lower plate.

17. A rotary tableting press comprising:
a turret having upper and lower portions rotatably supported by said tableting press each having a plurality of openings such that each of the openings in said upper portion is aligned with one of the openings in said lower portion;

a plurality of upper and lower punch assemblies each comprising a punch casing removably received in one of the openings in said upper and lower turret portions and having a central opening defining a punch contact

surface, each upper and lower punch assembly further comprising a punch
10 received in the central opening of said punch casing for sliding contact between
said punch and the punch contact surface of said punch casing; and

means for reciprocating said upper and lower punches within said
upper and lower punch casings.

18. The rotary tableting press according to claim 17 wherein
said reciprocating means comprises upper and lower rollers supported by said
tableting press, said upper and lower rollers positioned and oriented to engage a
first end of said upper and lower punches to direct said upper and lower punches
5 towards one another, and wherein said reciprocating means further comprises
means for biasing said upper and lower punches, said means for biasing
upwardly biasing said upper punch members into contact with an upper plate
and downwardly biasing said lower punch members into contact with a lower
plate.

19. A system for supporting punches in a rotary tableting
press, said system comprising:

a turret comprising upper and lower portions rotatably supported
by said tableting press, each portion having a plurality of openings such that
5 each of the openings in said upper portion is aligned with one of the openings in
said lower portion;

a plurality of upper and lower punch casings removably received
in one of the openings in said upper turret portion and having a central opening
defining a punch contact surface, each upper and lower punch casing receiving a
10 punch for sliding contact between said punch and the punch contact surface of
said punch casing; and

means for reciprocating said punches within said upper and lower
punch casings.

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20. The system according to claim 19 wherein the central opening in each of said lower punch casings includes a bore having a terminal end and wherein each of said punch casings includes a die portion extending from the terminal end of said bore to an end of said casing, said die portion
- 5 having an opening defining a material chamber extending through said die portion and communicating with said bore.

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